

REMARKS

Claims 19-39 are pending. The examiner has rejected all of the pending claims under 35 USC §103 as unpatentable over Porubcan (3,897,307). Claims 19, 27, 33 and 38 have been amended. Support for this amendment may be found on page 15, line 26 of the applicants specification. The examiner notes that the arguments made of record in paper number 8 have been considered but are not found persuasive. Furthermore, the examiner argues that there appears to be some unexpected results however, the showing of unexpected results must be clear and convincing as well as commensurate in scope with the claimed subject matter. (Paper number 8, p. 2.)

In response, applicants submit the enclosed affidavit of Dr. Harz which provides clear and convincing evidence of the unexpected results. Tables A-D referred to in the declaration were previously submitted in paper number 7 on June 20, 2002, and thus have not been resubmitted with this communication. Applicants respectfully request this evidence be given its full weight as directed by MPEP §716. Furthermore, applicants respectfully assert that in view of the affidavit evidence and arguments of paper number 7, incorporated herein, there is clear and convincing evidence of unexpected results that is commensurate in scope with the claimed subject matter. Therefore, applicants respectfully request the rejection be withdrawn and the claims be passed to issue.

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Respectfully submitted,  
KEIL & WEINKAUF

A handwritten signature in black ink, appearing to read 'Lesley E. Shaw', with a stylized, flowing script.

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Cancel claim 39.

Amend claims 19, 27, 31, 33 and 38 as follows:

*C<sup>1</sup>* | ~~19~~. (currently amended) A dry microorganism culture which comprises at least one microorganism species in carrier-bound form, wherein the culture is present in the form of particles which

- a) have a particle size of at least about 0.1 mm and
- b) comprise from about  $10^{10}$  to  $10^{12}$  cfu/g of at least one microorganism species;

and

- c) have a water activity  $a_w$  of less than 0.15; and
- d) are compressed.

*C<sup>2</sup>* ~~9~~ ~~27~~. (currently amended) A process for producing a dry microorganism culture, comprising at least one microorganism species in carrier-bound form and having a water activity  $a_w$  of less than 0.15, which process comprises,

- a) dissolving or suspending at least one substance suitable for forming a carrier in a liquid comprising at least one microorganism species,
- b) drying the resultant mixture in a spray-dryer, for the spray-drying use being made of a conditioned dried gas having a dew point of less than about  $+5^{\circ}\text{C}$ , heated to a temperature in the range of above about  $80^{\circ}\text{C}$ , and

- c2
- c) removing the dried material from the spray dryer, this dried material having an exit temperature of from about 45 to 75°C.
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13 31. (currently amended) A process for preparing a dry microorganism culture as claimed in claim 19, which comprises

- c3
- i) ~~Producing~~ producing a powder concentrate of the microorganism culture by carrier-bound spray-drying, carrier-bound freeze-drying or carrier bound fluidized-bed drying,
  - ii) with or without admixing the powder concentrate with one or more coformulants and
  - iii) compacting or tableting this mixture.
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15 14 33. (currently amended) A process for preparing a dry agglomerated microorganism culture, which comprises

- c4
- i) preparing a powder concentrate of the microorganism culture by carrier-bound spray-drying, carrier bound freeze drying or carrier-bound fluidized-bed drying which powder concentrate has a water activity  $a_w$  of less than 0.15,
  - ii) with ~~out~~ or without admixing the powder concentrate with one or more coformulants and
  - iii) agglomerating this mixture.
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c5 20 38. (currently amended) A powder concentrate of a microorganism culture comprising from about  $4 \times 10^{11}$  to  $10^{12}$  cfu/g of at least one microorganism species, and

having a water activity  $a_w$  of less than 0.15.

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**COMPLETE LISTING OF ALL CLAIMS IN THE APPLICATION**

1-18 (canceled).

19. (currently amended) A dry microorganism culture which comprises at least one microorganism species in carrier-bound form, wherein the culture is present in the form of particles which

- a) have a particle size of at least about 0.1 mm and
- b) comprise from about  $10^{10}$  to  $10^{12}$  cfu/g of at least one microorganism species;
- c) have a water activity  $a_w$  of less than 0.15; and
- d) are compressed.

20. (previously added) A microorganism culture as claimed in claim 19, wherein the particles have been compressed under the action of a linear force from about 5 to 15 kN/cm or a pressure from about 90 to 160 MPa.

21. (previously added) A microorganism culture as claimed in claim 19, wherein the compressed particles comprise compacted broken material having a diameter of from about 0.1 mm to about 2 mm.

22. (previously added) A microorganism culture as claimed in claim 19, wherein the compressed particles comprise tablets having a diameter of from about 2 to 50 mm and a ratio of diameter to thickness of from about 1:0.1 to about 10:1.

23. (previously added) A microorganism culture as claimed in claim 19, wherein it comprises, a further component, an effervescent additive.

24. (previously added) A microorganism culture as claimed in claim 19, wherein, as carrier, it comprises at least one matrix material for embedding the microorganism cells with or without at least one further cell-stabilizing additive.
25. (previously added) A microorganism culture as claimed in claim 19, wherein it comprises at least one lactic-acid-producing bacterial species.
26. (previously added) A microorganism culture as claimed in claim 25, wherein the bacterial species is selected from bacteria of the genus *Lactobacillus* sp.
27. (currently amended) A process for producing a dry microorganism culture, comprising at least one microorganism species in carrier-bound form and having a water activity  $a_w$  of less than 0.15, which process comprises,
- a) dissolving or suspending at least one substance suitable for forming a carrier in a liquid comprising at least one microorganism species,
  - b) drying the resultant mixture in a spray-dryer, for the spray-drying use being made of a conditioned dried gas having a dew point of less than about +5°C, heated to a temperature in the range of above about 80°C, and
  - c) removing the dried material from the spray dryer, this dried material having an exit temperature of from about 45 to 75°C.
28. (previously added) A process as claimed in claim 27, wherein, in a further stage d), the dry material is subjected to a further drying at a temperature in the range from about 15 to 50° C in a gas atmosphere or in vacuo and/or at least one

desiccant is added.

29. (previously added) A process as claimed in claim 27, wherein, as dry material, a powder concentrate having a content of viable microorganisms of from about  $5 \cdot 10^8$  to  $1 \cdot 10^{12}$  cfu/g is obtained.
30. (previously amended) Dry compressed microorganism culture according to claim 19, obtained from a powder concentrate of microorganism culture dried in a spray-dryer, for the spray-drying use being made of a conditioned dried gas having a dew point of less than about  $+5^\circ\text{C}$ , heated to a temperature in the range of above about  $80^\circ\text{C}$ .
31. (currently amended) A process for preparing a dry microorganism culture as claimed in claim 19, which comprises
- i) producing a powder concentrate of the microorganism culture by carrier-bound spray-drying, carrier-bound freeze-drying or carrier bound fluidized-bed drying,
  - ii) with or without admixing the powder concentrate with one or more coformulants and
  - iii) compacting or tableting this mixture.
32. (previously added) A process as claimed in claim 31, wherein the compacted powder concentrate from stage iii) is broken, with or without classification.
33. (currently amended) A process for preparing a dry agglomerated microorganism culture, which comprises



- i) preparing a powder concentrate of the microorganism culture by carrier-bound spray-drying, carrier bound freeze drying or carrier-bound fluidized-bed drying which powder concentrate has a water activity  $a_w$  of less than 0.15,
  - ii) with or without admixing the powder concentrate with one or more coformulants and
  - iii) agglomerating this mixture.
34. (previously amended) A process as claimed in claim 31, wherein the spray-drying is performed in a spray-dryer in which a conditioned dried gas is employed having a dew point of less than about  $+5^{\circ}\text{C}$ , heated to a temperature in the range of above about  $80^{\circ}\text{C}$ .
35. (previously amended) A starter culture for foodstuffs and feedstuffs comprising a microorganism culture as claimed in claim 19, or prepared by a process for producing a dry microorganism culture, comprising at least one microorganism species in carrier-bound form, which comprises
- a) dissolving or suspending at least one substance suitable for forming a carrier in a liquid comprising at least one microorganism species,
  - b) drying the resultant mixture in a spray-dryer, for the spray-drying use being made of a conditioned dried gas having a dew point of less than about  $+5^{\circ}\text{C}$ , heated to a temperature in the range of above about  $80^{\circ}\text{C}$ , and

- c) removing the dried material from the spray dryer, this dried material having an exit temperature of from about 45 to 75°C.

36. (previously amended) A foodstuff or feedstuff obtainable by using a microorganism culture as claimed in claim 19 or prepared by a process for producing a dry microorganism culture, comprising at least one microorganism species in carrier-bound form, which comprises

- a) dissolving or suspending at least one substance suitable for forming a carrier in a liquid comprising at least one microorganism species,
- b) drying the resultant mixture in a spray-dryer, for the spray-dryer use being made of a conditioned dried gas having a dew point of less than about +5°C, heated to a temperature in the range of above about 80°C, and
- c) removing the dried material from the spray-dryer, this dried material having an exit temperature of from about 45 to 75°C.

37. (previously amended) A process as claimed in claim 33, wherein the spray-drying is performed in a spray-dryer employing a conditioned dried gas having a dew point of less than about +5°C, heated to a temperature in the range of above about 80°C.

38. (currently amended) A powder concentrate of a microorganism culture comprising from about  $4 \times 10^{11}$  to  $10^{12}$  cfu/g of at least one microorganism species, and having a water activity  $a_w$  of less than 0.15.

39. (previously added) The powder concentrate of claim 38 having a water activity

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~~$a_w$  of less than 0.4.~~

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